

he Macdonald FARM Journal



Vol. 23, NO. 7

JULY, 1962



The June Bug

Microflora of Small Fruits

Feeding People by the Hundreds

AN AUTOMATED HENHOUSE



The modern farm is a food factory — the world's most important production line. Like every other factory it depends on power — efficient, economical electric power!

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Canadian Wheat and the World Food Bank

Canada's post-war marketing problems with respect to wheat developed simultaneously with her recognition — and that of other countries of the United Nations — of our responsibilities to the underfed millions of the World's population. Our Government took a leading role in the formation of F.A.O. at the Hot Springs' Conference, and the Organization had its formal beginning in Canada, at Quebec, in 1945. One of Sir John (later Lord) Boyd-Orr's concepts in the beginning of F.A.O. was for a World Food Bank and this, of course, attracted a favourable World press. However, little has happened in the fifteen years that have elapsed since then.

During those years Canada has had a role in the discussions with regard to the World Food Bank but, unfortunately, the role we have played has been neither consistent nor entirely admirable. The original suggestion for the Food Bank came from Boyd-Orr immediately after the War, at a time of food shortages, and the suggestion was enthusiastically welcomed by the food-importing countries, particularly those of Europe and the Far East, since they recognized this as a marketing safety-valve which would prevent the excessive increase in prices which they felt they were being subjected to in a time of hardship.

Understandably, the food exporting countries, including Canada, while they could not actively oppose such a humanitarian proposal, were not wildly enthusiastic and, without the suppliers' support, the proposal, naturally, came to nothing. Within a few years the shoe was on the other foot, with the development of a buyers' market in food grains.

At this stage, the idea was born again, with the enthusiastic support of the exporters, including Canada, who saw this as a marketing prop to prevent the collapse of prices. Understandably enough, at this stage, the food deficit countries were less than vigorous in their support and the proposal again came to nothing. This cycle has, unfortunately, been repeated more than once since, and Canada's role has been positive only in times when cereals have been difficult to market. The newest moves at the last F.A.O. Conference, in which Canada joined other food-exporting

countries in pushing for the establishment of the most recent version of the Food Bank, cannot be viewed except as the next movement in a tragically important two-step. With a history of fifteen years of off-again, on-again diplomacy, it would be sanguinary to hope that we will now be taken seriously.

With a cloudy future apparent for all but a minor proportion of our wheat crop, and that restricted to the highest quality wheat, Canada has two choices. The first is to try to woo her traditional European customers back to a dependence on imported cereals through a decrease in prices sufficient to make part of the cereal production of Europe unattractive as a national policy. This is steadily less promising, with automation freeing workers from industry and so making agriculture a desirable avenue for part of the labour force, and with the growth in strength of the European Common Market, which has, as one of its foundations, the principle of protecting European agriculture from strong outside competition.

The second alternative is to recognize that the World will continually need our grain supplies, but that our annual production will not necessarily coincide with the annual demands of the food deficit countries. In consequence, we should take a steadfast line with regard to the World Food Bank, facing the same way in times of both good prices and surpluses. In this program, we combine our feelings for the underfed millions in famine or food deficit areas with our desire for a back-stopping cushion to prevent excessively violent price fluctuations. Obviously, Canada has a major responsibility with regard to the World Food Bank, in relation not only to feeding the hungry millions, but also with respect to our own producers.

Recently some of us were impressed with the pronouncement from Washington, by the Deputy-Administrator of the Agency for International Development, that Canada ranked tenth among the nations of the World with respect to the provision of economic aid to the developing countries. In spite of the protestations from Ottawa that Canada was doing a creditable job, our tenth position should not give us any grounds for complacency



From an address by **DR. H. G. DION** to the Agricultural Institute of Canada on "Canadian Agriculture on the World Scene".

and should be a cause for real concern to those who feel that being one of the World's most prosperous countries carries with it the obligation to be one of the more generous. Aid to the extent of 0.2% of our G.N.P. is apparently not very generous in relation to what nine other countries are doing!

The test of Canada's attitude and Canada's leadership, which has not been pronounced or sustained in the fifteen year history of the Food Bank idea, will be when (and if) we have a chance to speak strongly and to provide real leadership on the side of the exporting countries at the next time the idea is suggested — the time when cereal grains are again in short supply. It might be concluded that Canada's intermittently declared good intentions will not have a chance of being taken seriously unless an unhappy coincidence of unfavourable weather conditions in the cereal exporting countries wipes out the present World surplus.

The tragedy of poverty in the midst of plenty, with surpluses in some countries and food shortages in others, is a problem that nags our consciences. There can be little doubt that the Canadian people would welcome a solution which would make humanitarian sense out of the illogicalities and the economic barriers of our present system of distribution and marketing of the World's food resources.

A faithful devotion (rather than fickle adherence) on the part of the Canadian Government to the World Food Bank principle, not only in times when we have a surplus, but also in times of good prices, would be a great contribution towards increasing the international stature of Canadian agriculture. The value and importance of such an attitude cannot be over-emphasized.

INDEX

VOL. 23, NO. 7

JULY, 1962

	Page
Editorial	147
Observations	148
Microflora of Small Fruits	149
The June Bug	152
The Family Farm	154
The Country Lane	159
The Home Guard of Dunham Township	160
Feeding People by the Hundreds	162
The Better Impulse	164
The College Page	167

ADVERTISERS' INDEX

Macdonald Tobacco Company	146
Timmerlinn Tree Farm Service	148
Shur-Gain Feed Service	150
Green Cross Products	152
Chipman Chemical Company	153
The Shawinigan Water & Power Co.	168

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Observations

WHAT IS A FARM?

The census of farms, 1961, contains some very interesting information. For instance, we find that 26,800 farms disappeared in Quebec between the years 1956 and 1961, along with about 1,700,000 acres of land. Where did it go?

According to census experts any holding of 1 acre or more with sales of agricultural products, during the previous 12 months, of \$50 or more, was considered as a farm in 1961. The experts were not as finicky in 1956, when they accepted as a farm a holding on which agricultural operations were carried out and which was 3 acres or more in size or from 1 to 3 acres in size with agricultural production of \$250 or more during the previous year.

So Quebec lost 21.9% of the 1956 tally of farms to wind up with 95,777. At that she fared better than New Brunswick where 46.7% of the farms disappeared in a five year period. Had the experts retained the 1956 defini-

tion of a farm, Quebec would only have lost 13,800 farms.

But what is a farm? If I sell \$50 worth of strawberries am I a farmer? How many farm operations do we have for which we can hold out some hope of existence 15 years hence? Or which our "agronomes" would call a farm? 50,000? 60,000? or perhaps only 55,000! What's your guess?

THAT SC UPSURGE

The recent upsurge of Social Credit in our fair Province has left political pundits shaking their heads. The English population of the Province, almost oblivious of the pre-election enthusiasm for Social Credit, is in much the same boat. Several reasons for the surprise vote have been given.

Our own appraisal is that Social Credit popularity is merely an expression of malaise among French Canadians. In those areas of Quebec which voted SC there is a large working force of French persons who, because of language, are not free to move out of their region to look for work. Agriculture in these regions is anything but prosperous and heavy industry is lacking. Both old line parties who have had opportunity within recent memory to improve the situation have failed, so SC, skilfully led and with shining, but distant, examples of success to point to, caught their fancy. Did the voter really understand SC theory? Stuff and nonsense! He was expressing dissatisfaction in the only way provided by our electoral system.

Cover Picture

Mr. Wilfred Serre of St-Edouard, Napierville, in a ten-acre field of beans intended for the cannery. He has twenty-six acres in vegetables. Photo by Ciné Photo.

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150,000 trees planted so far this year.



One hour after picking the above strawberry, as this picture was taken, was feeding more than 15,000 microbes on sap which escaped through the fruit wall. If kept unrefrigerated, this number would increase rapidly causing fruits to spoil.

MICROFLORA

a major cause of spoilage of

SMALL FRUITS



Very minute members of the plant kingdom, so very tiny that they cannot be seen by the naked eye, called microorganisms, cause producers of fresh fruits losses of millions of dollars every year. They are found on strawberries, raspberries, blueberries — all kinds of fresh berries. A major cause of spoilage of these fruits, these microorganisms can be found

on berries in large commercial plantations or on berries in small gardens.

An understanding of how these tiny organisms live, grow and reproduce will provide good reasons for following recommended cultural, harvesting and processing practices. It will also indicate why certain cultural practices are to be avoided.

Experiment to Study Microorganisms

In this article I want to report some of the results of a study conducted over one harvesting season. The aim of the project was first a study of the microbiological flora of freshly picked small fruits, strawberries and raspberries, as affected by variety, rainfall, location and pre-treatments, and secondly, the effects of treatments after harvesting on the numbers of microorganisms.

Strawberry and raspberry samples were collected from the plantation at Macdonald College. Strawberry samples were also collected from the Experimental Farm, Canada Department of Agriculture, L'Assomption. Four varieties of strawberries were collected from Macdonald College, Sparkel, Valentine, Sangua, and Premier, while nine varieties were sampled at L'Assomption, — Sparkel, Red Coat, Early Dawn, Cavalier, Senator Dunlap, Grenadier, Pocahantas, Guardsman and Armore. The raspberry samples were taken from four popular varieties of this area, namely, Latham, Viking, Newburg and September.

Strawberries were sampled at regular intervals from June 16th until the end of July. Raspberries

by Mr. N. N. JOSHI

Department of Agricultural
Bacteriology

were sampled from July 15th to August 15th. In these experiments, 44 samples of strawberries and 23 raspberry samples were collected.

Counting the Microbes

Microorganisms live on the exterior of the fruits and thrive on the sap which escapes through the wall of the soft fruits. They produce certain enzymes, or chemicals, and if left unchecked cause spoilage of the berries. If fruit is washed the majority of these microorganisms will be removed easily.

The counts of microorganisms were done in triplicates, to get an average count. The procedure for counting the minute bacteria is rather complicated, because of their small size. A known amount of sterilized water is added to a weighed quantity of berries, and blended to produce a suspension. A known volume of this suspension is placed in special sterilized dishes provided with a lid to which a sterile growth medium (growth

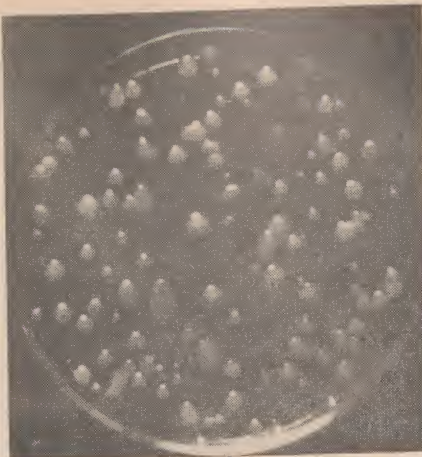
medium supports the multiplication of the microorganisms) is added. These dishes are incubated at 30°C for 48 hours and then counted. Since there are different kinds of microorganisms, different growth media were used, some of which were ideal for one kind of microorganism while some favoured others. The individual microbes grow and reproduce by the process of cell division, until a group or colony becomes sufficiently large that it is visible with the naked eye and is counted as one organism.

The counts were done on the fresh (untreated) fruit and after storage at room temperature (25°C) for 48 hours; after storage at 10°C for 48 hours, and 96 hours; and after storage at -17°C for 96 hours.

Wide Range In Numbers

Examination of strawberries from Macdonald College and the Experimental station at L'Assomption indicated that the microbial content of different lots of fresh material varied over a wide range, and that raspberries carried smaller populations of microorganisms as compared to strawberries (Table I). The result of this study showed that the berries cannot be kept at room temperature (25°C) for a long time without deteriorating the quality of the fruits. At this storage temperature the total number of microorganisms on strawberries and raspberries increases because the conditions are favourable for the multiplication of the microorganisms. The raspberries carried comparatively fewer organisms than strawberries but demonstrated a similar increase in numbers.

The counts showed that strawberries which were picked with



This photo shows colonies of microorganisms in a growth medium. Each colony represents one microbe.

care at Macdonald College, carried an average of 1542 microorganisms per gram (the average berry weights about 7.5 grams as compared to an average count of 6295 per gram on strawberries from L'Assomption. It appears to be practically impossible to prevent some microbes from getting on the berries.

Why Microbial Content Varies

The microbial content of the fresh fruits may vary with such factors as rainfall, weather conditions, location, variety of fruit, conditions of picking, handling and subsequent shipping. All these factors have an influence on the microbial content of the fresh fruit and on the quality of the finished product. The initial number of microorganisms on fresh berries is very important to the frozen food industry since the microbial content of the finished product depends upon it, which in turn influences the keeping quality, taste, flavour, etc., of the finished product. It is therefore

ALL-MASH PROGRAM KEY TO BALANCED FEEDING

W. K. Meyer
Chief Nutritionist



SHUR-GAIN PUTS THE GAIN IN POULTRY FEEDING

Modern trends in egg marketing have presented problems of maintaining consistent egg production along with good egg quality throughout the year rather than just on a seasonal basis. To satisfy today's market needs, poultrymen have to provide a more even flow of eggs along with consistently high quality of egg shell, yolk and the white.

The hatching and raising of a strong and healthy chick is obviously important to the future layability of every pullet. But of equal importance is the continuation of a sound All-Mash Feeding Program throughout the laying period.

The Shur-Gain All-Mash Program is preferred because all birds are assured of getting a properly balanced diet and because there is accurate consumption of all nutrients by each bird. The Shur-Gain All-Mash Program is of particular importance where the operator must depend on hired help, and when there are additives such as Wormmedications, ingredients and coccidiostats. Irregularities in egg production and quality due to unbalanced feeding are virtually eliminated.

An important feed developed by Shur-Gain for the laying period is All-Mash Lay Booster, a feed fortified with antibiotics to combat the occurrence of stress conditions which might lower the flocks' egg production throughout the laying period.

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TABLE I

MICROFLORA OF FRESH STRAWBERRIES AND RASPBERRIES

	Average counts/gram wet weight (in thousands)		
	Total Microbial count	Moulds	Yeasts
Strawberries from Macdonald College. (Average of 18 determinations)	1542	666	805
Strawberries from L'Assomption. (Average of 26 determinations)	6295	587	578
Raspberries from Macdonald College. (Average of 23 determinations)	900	490	760

important to growers to keep the initial number of microorganisms as low as possible.

Considering the manner in which strawberries and raspberries grow and their close proximity to soil (especially strawberries), their microbial flora is expected to consist largely of common soil organisms. However, other sources of contamination are found before the fruits reach the consumer even when all precautions are taken during and after collection. Wide variation in the microbial counts of different lots of fresh material occur and it is thought that weather conditions at harvesting time are responsible. Strawberries in the fresh state carry comparatively large numbers of surface microorganisms depending on methods of handling and conditions of growth, particularly the nature of weeds and the litter under the plants.

Effect of Rainfall

It was noted during this study that the amount of rainfall bears no exact relationship to microbial population of strawberries and raspberries. It has been noted, especially with strawberries, that after rain the numbers of microorganisms increase due to splashing of soil. But if the second shower of rain follows immediately and is not separated by a very long dry spell, it washes away most of the soil which was splashed by the previous rainfall. The situation is entirely different with raspberries due to their higher level from soil as compared to strawberries, the washing effect of rain is more predominant. The variety of the berries has little influence on the microbial population of strawberries and raspberries.

It would appear that microbial counts would be lower if berries are dry when picked rather than wet as the microorganisms prefer moist surfaces to grow. The type of litter under the berries also influences the number of microorganisms on the berries.

Refrigerated Storage

How best can the delicate berries be stored after picking, before they are shipped to the market? The method of food preservation at low temperatures is not new, but developed markedly with the introduction of new and efficient refrigeration units, where low temperatures can be attained very efficiently. It has been found



Mr. Joshi is a student at Macdonald College working towards his Ph. D. in the Department of Agricultural Bacteriology, in collaboration with the Department of Animal Pathology. His present problem is to find the cause of chronic pneumonias in livestock. He came to Macdonald in 1959 and received his M. Sc. in Agricultural Bacteriology last year. He has a Bachelors Degree in Veterinary Science and Animal Husbandry (1958) from Panjab University, Chandigarh, India.

by experiments that refrigeration (10°C) is a very effective means of storing berries for a period of 2-3 days, without effecting the quality of the fruit. The results of this study showed that the numbers of microorganisms on strawberries and raspberries actually decreased when stored at refrigerator temperature (10°C) for 48 and 96 hours respectively. It will be further noted by the comparison of figure (Fig.I) that berries carried fewer organisms after storage at 10°C for 96 hours than for 48 hours.

It must be added here that the

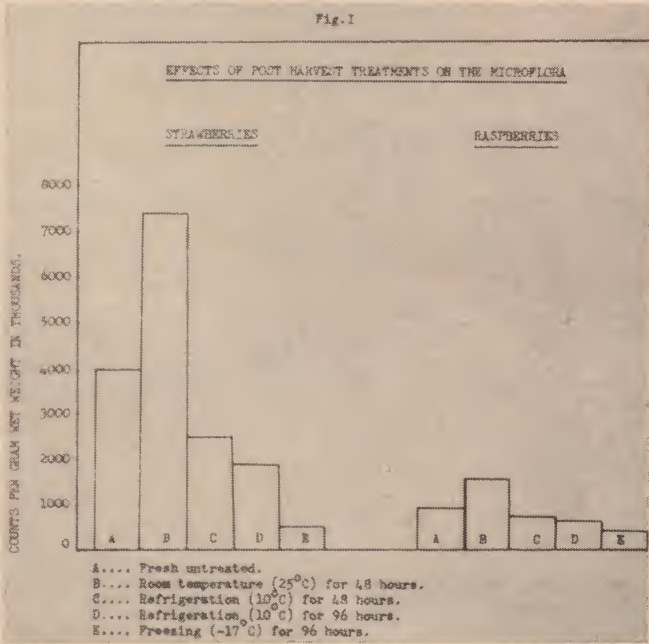
efficiency of refrigeration has its own limitations and the effectiveness of refrigeration is reduced beyond 96 hours. After this period moulds capable of growing at low temperature develop and spoil the fruit. It is highly recommended to store the berries for refrigeration in small containers (1-2 pound) so that they are cooled quickly, and the chances of spoilage in the middle of the mass are decreased.

Freezing for Preservation

Another method of keeping the berries for longer periods is freezing, which is more effective than refrigeration, but at the same time is much more expensive. The results showed that the number of microorganisms on berries actually decreased as a result of storage at subfreezing temperature (17°C) (Fig. I). There is one point with regard to freezing which needs careful attention. Frozen berries, cannot be kept at a higher temperature, once they have been frozen because some microorganisms, which remain alive even after freezing, will multiply when berries are held at a higher temperature and will spoil the fruits.

Preservation of food by low temperature, although not new, was in commercial use for more than 95 years. Consequently, refrigeration of food has assumed new importance because of great improvements made in equipment and in technique of refrigeration processes. Low temperatures inhibit microbial growth, but frozen foods are not sterile in the same

(Continued on page 158)



The June Bug



Erroneously known as a 'June Bug', the 'May Beetle' may cause severe damage, especially at the grub stage where he may feed on potatoes, strawberry plants or old pasture.

Most people in southern Quebec are familiar with the insects called "June Bugs" which come to lighted windows during May and June evenings. "June Bug" is not the correct common name for this group of insects. They are beetles, not bugs, and they usually appear in numbers in May, with some late emerging ones showing up in June. The correct name for the insects, which unfortunately have been called "June Bugs" for many years, is "May Beetles". The term "Bug" is used by many lay people to refer not only to all insects but to other related animals as well. Entomologists use this word to refer to a single group of insects, those which obtain their food by piercing plant or animal tissue and sucking up sap or blood. Beetles feed by biting and chewing their food.

Not all Beetles are Pests

The group of insects called May

Beetles has been well known since very ancient days. The family name of this group of beetles is Scarabaeidae (Scar-a-bee-i-day), and includes, as well as the leaf-chafers (the May Beetles and other leaf-feeders), a great number of scavenger beetles. The sacred Scarab beetle of the Egyptians was a scavenger beetle, and was held in high veneration by them. It was placed in the tombs of the Pharaohs and other dignitaries, its picture was painted on sarcophagi, and its image was carved in stone and on precious gems.

These beetles, being scavengers,

cleaned up dung of animals by forming it into balls and burying it. Sometimes they would roll these balls of dung for considerable distances, male and female beetles working in pairs. Their actions in rolling these balls, which were often much larger than the beetles, prompted the common name of "Tumble-bugs" or more correctly "Tumble-beetles".

To the Egyptians, the ball, which the beetles were supposed to roll from sunrise to sunset, represented the earth. The Beetle represented the sun and the projections on its head represented rays of light. Its six tarsa or feet are found

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irty segments, representing the
ays of the month. The Egyptians
ought all of this species of
eetle were males and to them, a
ace of males symbolized a race
f warriors. This superstition was
arried over into the days of the
oman Empire, when Roman sol-
iers wore images of the Sacred
eetle set into rings.

Thus, we find that half of this
ery large beetle family, the Scar-
aeidae, are beneficial insects,
elping to keep the surface of the
arth clean. The other half of the
amily have no such attributes;
hey all fall into the "pest" class.

There are several species of May
eetles in Quebec. The one which
most numerous and causes the
most damage is *Phyllophaga anxia*
econte, although *Phyllophaga*
asca Froe. causes almost as much
ouble. A third species, *Phyllo-*
naga drakei Kirby, is much less
umerous, and several other spe-
es probably occur in small num-
ers.

Life Cycle of the May Beetles

The adult May Beetles live for
a short period of time, only a few
weeks at the most. That is long
enough to become a great nui-
sance, because of their habits of
flying to lights at night, battering
themselves against screens and
windows, and by feeding upon the
foliage of ornamental trees and
shrubs. The very heavy flight of
May Beetles in 1956 caused severe
damage to ornamentals in south-
ern Quebec and southeastern On-
tario.

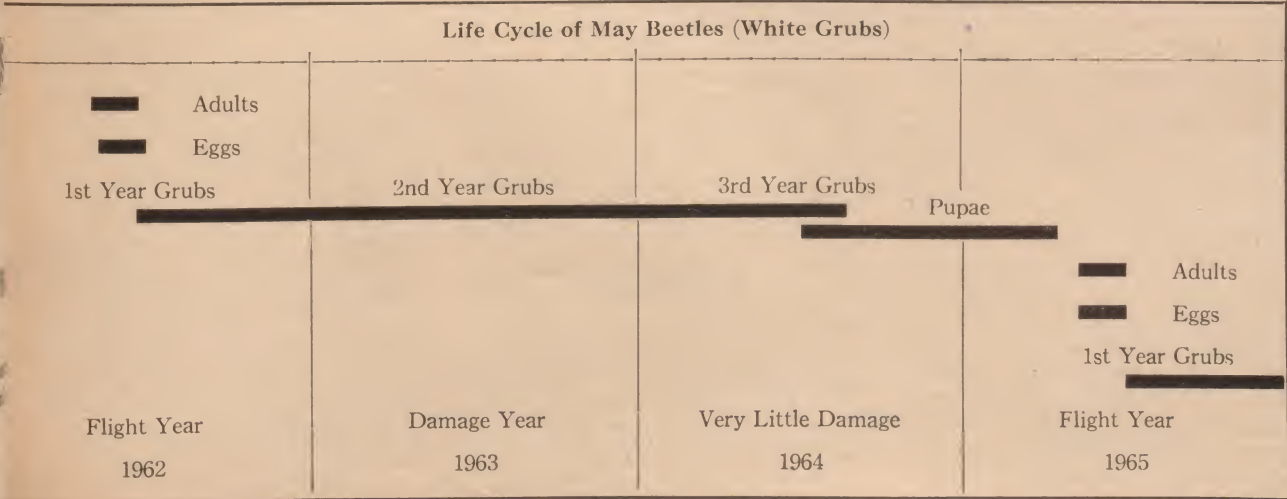
Contrasted to the short life of
the adults is the extremely long
time required for growth of the
larvae, the White Grubs. Three
years are spent in the soil in the
immature stages, egg, grub and
pupa, before the adult emerges
for its short span, to mate, pro-
duce eggs and die. (See the Life
Cycle chart.) During the flight
year, eggs are laid in the soil, and
soon hatch into tiny grubs. Being
small, their feeding upon plant

roots does not cause severe dam-
age.

The second year grubs feed
most voraciously, chewing off
roots and eating away the crowns
of many plants. It is always dur-
ing the year following a year in
which beetles are very numerous
that the greatest damage from
this pest occurs. The year 1957 is
a good example of this, for during
that year severe damage was re-
ported from southeastern Ontario
and southern Quebec.

While a main brood of beetles
emerges from the soil every three
years, there are also smaller num-
bers maturing in the intervening
years, so that we have two years
of small adult populations, fol-
lowed by two years of light grub
damage, then a year of high adult
population followed by a year in
which heavy crop damage occurs.
This should make the task of fore-
casting damage much easier, and
it does, for relatively small re-

(Continued on page 161)



THE FAMILY FARM

PUBLISHED IN THE INTERESTS OF THE FARMERS OF THE PROVINCE
BY THE
QUEBEC DEPARTMENT OF AGRICULTURE

Compiled by T. Pickup of the Information and Research Service,
Quebec Department of Agriculture. Photos by Ciné-Photo.

COLD STORAGE OF VEGETABLES

The successful keeping of vegetables in storage depends on the quality of the products which are stored and on the good management of the cellar or cold-storage (assuming, of course, that the latter has been properly built). It should not be necessary to insist at great length on the fact that only those vegetables should be placed in storage which are healthy and of good quality, free from bruises and decay, cuts and cracks and injuries caused by insects and disease, and have reached good size. The careful handling of vegetables at all times will bring rewards in the shape of better quality products and larger profits.

Jean David, specialist in food preservation of the Quebec Department of Agriculture, considers that satisfactory management of the storage implies that it shall have had a good preliminary cleaning and that cooling be started as soon as possible.

It is most important to subject the vegetables to rapid cooling once they have been placed in the storage. The carrying out of this procedure requires good ventilation and good circulation of air. These two terms should not be confused. Ventilation means the entry of cold air through ventilators or holes, preferably aided by a fan. This ventilation is controlled so as to lower the temperature as quickly as possible. Good circulation means that the cold air introduced into the storage must be able to reach every vegetable so as to ensure rapid and uniform cooling; hence the importance of slatted floors and perforated inner walls to promote the circulation of air within the storage. Finally, care must be taken to provide whatever kind of vegetable is to be stored with the conditions of humidity which it demands.



Jacqueline de Repentigny picking cucumbers on her father's farm at St-Rémi, Napierville. The eldest of ten children, she holds a diploma in agriculture.

GRADING FRUITS AND VEGETABLES

It is of vital importance to producers of fruits and vegetables to prepare their products for sale in a manner that will satisfy the tastes of the consumers. If they do not do so, they will lose their markets to strangers.

Although the farmer is not compelled to grade his products for sale in conformity with the established standards, he is obliged under the terms of the Agricultural Products Act to cull them, removing spoiled products and any substances of organic or mineral origin which might diminish the commercial or food value of the product.

The Act also prohibits any arrangement or display of the product of a nature likely to mislead the buyer or to deceive him in any way. It specifically forbids the sale of any fruits or vegetables so

packed that the visible part is not similar to the average of the goods contained in the package, and it also prohibits the sale of any package of fruits or vegetables which is insufficiently or badly filled.

But, apart from legal considerations, it must be clear to everybody who believes Mr. Deguire of the Quebec Department of Agriculture, that goods which are not at least equal in quality to those offered by one's competitors will not find a ready market. In trade, estimates of the quality of products are expressed as grades or classes. Besides culling their fruits and vegetables, growers should therefore also grade them so that they will measure up to the standards which have been established. This should be done before the products reach the consumer, that is to say, before they are offered for sale by the retailer.



Mrs. Hector Lucier picking raspberries at St-Jacques-le-Mineur, Laprairie, on land which has been farmed by the Lucier family since 1785.

PICKING RASPBERRIES

The size of the raspberry crop (as well as that of all other fruit) depends largely on weather conditions. There will be little profit if the season is unfavourable or if the plantation has not been given the care it needs. As a rule, proper care always pays and, in general, the better the crop the bigger the profits. It also pays to take all the necessary steps to make sure that the fruit is harvested in good condition.

Raspberries must be harvested and handled with great care because they are delicate and perishable. They should be picked at a perfect stage of maturity, that is, when they are ripe enough for the berry to separate easily from its stalk.

The appearance of the fruit and the way it is presented for sale are two factors which greatly influence the buyer's decision: the grower should therefore take all possible precautions to safeguard them. The first of these precautions, says Mr. Henri Jeanneret of the Quebec Department of Agriculture, is surely that of picking raspberries when the weather is dry and avoiding dew as much as possible.

In order to facilitate picking, it is customary to use a basket or tray which will hold four one-pint boxes or punnets. As soon as the boxes are full they should be carried into the shade. They should be filled generously so that they will not pack down too much during transportation.

Raspberries should be stored in a well-ventilated place while awaiting shipment. *Grading:* To qualify for *Grade No 1*, raspberries must be mature, free from surface water and stems, leaves, and green or seedy fruit, and of superior size and colour for the variety. For *Grade No 2*, they must be mature, firm enough, free from stems and leaves, and of normal size.

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THE CARE OF BEES IN SUMMER

The fields are full of clover but, unfortunately, in many apiaries there are too few worker bees for the colonies to produce really good yields of honey. Nevertheless, Mr. René Brasseur of the Apiculture Division of the Quebec Department of Agriculture considers it advisable for beekeepers to take good care at this time of the year to see that the bees do not run short of space to store the honey that they harvest. It is better for a colony to have one super too many than for it to swarm for want of room.

This is also the most suitable time for the beekeeper to change queens in those colonies where it is necessary to do so. In general, every queen which is two or more years old should be replaced. Young queens continue their egg laying later in the fall and thus provide the hive with a strong population of

THE HARVESTING AND HANDLING OF SNAP BEANS

Snap beans (sometimes known as bush beans, string beans or kidney beans) are rich in mineral substances, their mineral content being roughly equivalent to that of peas. However, they contain less iron than peas. On the other hand, their calcium content is higher; hence their importance in nutrition for the formation and maintenance of strong, healthy bone.

From the consumer's point of view, beans are a tasty and appealing vegetable. However, if all their natural savour and nutritive value are to be retained, they must be picked at the right time, that is, every two or three days, while the pods are still young and tender. Frequent and timely picking helps to ensure a product of high quality. It also prolongs the vegetative life of the plants and thereby increases their total yield.

In order to avoid spreading rust and anthracnose, two diseases which ruin the appearance of beans and deprive them of all commercial value, growers should refrain from picking or even from walking amongst the plants when the leaves are wet, either following rain or when the dew is on them.

As soon as possible after snap beans have been picked for canning, says Mr. H. Robert of the Quebec Department of Agriculture, they should be taken to the cannery. If, for one reason or another, the canning process is delayed for a few hours, care should be taken not to keep the beans piled up in a dense heap, since this will cause them to heat and lose much of their flavour and nutritive value. The best thing to do, in such an emergency, is to spread them out in a cool, well-ventilated place in a layer not more than eight inches thick.

young bees to face the winter. They are also better able to produce good brood the following spring.

Too many beekeepers have an unfortunate tendency to begin extracting the white honey too soon. It takes bees about ten days to ripen honey after they have harvested it: if honey is extracted before it is thick enough, it is liable to ferment.

About the first week in August, white honey should be removed before the bees start adding brown honey to it. Combs which are only partly filled may be left in the hive so that the bees can finish filling them and ripening the honey.

CALFHOOD VACCINATION AGAINST BRUCELLOSIS

The Provincial Department of Agriculture and Colonization is launching a publicity campaign to make livestock breeders aware of the importance of availing themselves of antibrucellosis vaccination of calves: the following principles and directions are presented with a view to enabling those concerned to make uniform recommendations to owners of cattle.

- 1 — The Department of Agriculture and Colonization of the Province of Quebec considers antibrucellosis vaccination to be a very valuable weapon in the battle against Brucellosis. Even though it cannot cure the disease, it helps to increase the resistance of animals to the infection by delaying and reducing the risks of infection.
- 2 — Antibrucellosis vaccination cannot give rise to the disease in cattle.
- 3 — Antibrucellosis vaccination alone will not eliminate Brucellosis from every herd nor from all cattle.
- 4 — Antibrucellosis vaccination cannot confer total immunity to the disease: in fact, in no case does a vaccine exist which is capable of providing an animal or human being with an entire protection against a disease.

Following a federal-provincial agreement aimed at the control of Brucellosis, a period of transition has now intervened, and the authorities of the Department are convinced that a publicity campaign in favour of vaccination to meet local conditions will render recourse to compulsory, free vaccination unnecessary. In view of this, it remains for us to announce the main features of the programme which will be put into effect to promote vaccination:

- 1 — Vaccination must be strongly encouraged in the zones which are accepted and certified by the Department of Agriculture of Canada. The vaccination of a good majority of the calves in these zones would ensure the maintenance of a pronounced degree of resistance against those reservoirs of infection which it may be impossible to eliminate. By this means, explosions of the disease in individual herds could be prevented.
- 2 — Vaccination becomes all the more necessary in those counties in which numerous centres of infection exist but which have not yet been accepted as zones for the control of brucellosis. There exist, in these counties, two categories of herds: on the one hand, there are 21,000 herds under a system of supervision, and on the other



An improved grade herd of dairy cows of Holstein type on the farm of Mr. Omer Lachance, at St-Augustin, Deux-Montagnes.

hand, there are a large number of herds whose state of health is unknown. The Department advocates vaccination regardless of the status of the animals.

Of the 21,000 herds under provincial surveillance, 15,000 are officially declared healthy. In the near future, the owners of these herds will receive circulars encouraging them to avail themselves of vaccination.

The Department has agreed not to insist that a herd be under provincial supervision before permitting vaccination. Any cattle owner who wishes to vaccinate had only to apply to his veterinarian, without undertaking to place his herd under provincial supervision. Certificates will be issued in favour of vaccinated calves. These certificates will be equivalent to those provided for animals in the certified zones. The present system of supervision is destined to disappear gradually in consequence of the federal-provincial agreement.

With the help of intensive publicity on your part, the above changes in the Department's attitude to vaccination can lead to a decisive amount of vaccination and allow breeders of purebred cattle to take advantage of the export market.

The Department counts on your help in making cattle owners understand the advantages as well as the limitations of antibrucellosis vaccination.

The Deputy-Minister of Agriculture
and Colonization

ERNEST MERCIER,
Agronome.

CLEANING UP THE BARN

There is no doubt that a dirty and unsanitary barn has a marked adverse effect on the income from a dairy herd. A number of things may contribute to this undesirable state of affairs: lack of any system of ventilation, the use of building materials which are not suitable for this type of construction, floors which are not tight enough, walls and ceilings inadequately insulated, cubic air space per head of cattle too large, insulation not protected by a vapour barrier, stalls too narrow or too short, windows which are not double, windows too small,

neglect of cleaning, etc.

Mr. Bruno Chartier of the Quebec Department of Agriculture points out that all these factors tend to lead, not only to conditions which are unfavourable to profitable yields, but also to the need for costly repairs.

The present time of year, when

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the animals are out on pasture, affords the best opportunity for making alterations and cleaning up the barn. This spring-cleaning may be followed by whitewashing with slaked lime to which disinfectant has been added in the form of half a tin of lye per ten gallons of whitewash.

As regards major alterations to buildings, directions and plans may in some cases be obtained from the Quebec Department of Agriculture. Application for such plans should be made the year before the work is to be done because they take some time to prepare.



The influence of a purebred Canadian bull can be seen in this grade herd belonging to Mr. Samuel Roy of Causapsal, Matapédia.

THE DISADVANTAGES OF SWITCHING BREEDS IN GRADE HERDS

A grade herd is one which consists of cows which are not pure-bred, and a registered bull of the breed which predominates amongst the females. Mr. Bruno Gélinas of the Quebec Department of Agriculture suggests:

A dairy farmer who has consistently followed this system of breeding, choosing his sires from the same well-reputed line, will before long have a herd of select quality. The dairy type will be apparent in his cows; their bodily conformation will be regular, their colouring uniform, and their milk yield profitable. Such an improvement in his herd will be an inspiration to the owner, and his increased interest will be reflected in better management, which will in turn lead to further progress.

On the other hand, the haphazard introduction of different breeds into the herd, whether with a view to increasing the weight of the animals or the yield or fat content of the milk, brings in a mixture of hereditary qualities which are often not consistent with one another, as they are under the first-mentioned method of breeding. That is why we too often see results of indiscriminate mixed breeding in the shape of descendants which are lacking in symmetry or harmony: animals with big heads; big limbs with a slender body; or long legs carrying a heavy frame; a red cow spotted with black, standing next to a blue cow, etc. Generally speaking, the yield of these odd creatures is also definitely far from profitable. Evi-

dently, in such cases, there has not been a happy blending of the desired qualities but rather a juxtaposition and superimposing of characteristics: entire pieces of paternally derived conformation alongside pieces of maternally derived conformation. The observation of a few herds will show this clearly. The result of this kind of mixed breeding all too often explains an owner's lack of interest in his herd and a tendency to negligence in management which are revealed, on balance, in losses instead of gains.

If one expects happy results, one must face the fact that respect for the laws of genetics is of the first importance. Mere trusting to luck is out of place in livestock breeding: the cost is too high.

There is no need for the dairy farmer to try to create new breeds: there are already enough for all ordinary purposes.

Why not raise one or two more calves? This is a question which naturally crops up at this time of year on the majority of dairy farms where it is found profitable to feed for market a certain number of good milk-fed calves which will bring in, within a few weeks, a considerable amount of extra money.

This question is also likely to occur, in a somewhat different guise, to those who are thinking less about immediate profit than

GROWING FALL RYE

Fall rye, though it is not ranked amongst the principal grain crops, can nevertheless be grown to advantage on many farms. It may be used for the following purposes: for grain production; to provide pasture for grazing in early spring and late fall; to add organic matter to the soil; as a plant cover to protect the soil following the removal of certain crops, and as a wind-break.

Mr. André Auger, of the Quebec Ministry of Agriculture, advises that fall rye be sown during the latter half of August regardless of the purpose for which it may be grown. If sowing is too long delayed, the plants will fail to develop a good root system and will therefore be less well prepared to withstand the cold and survive the winter.

In the province of Quebec, rye is mainly used to increase the amount of organic matter in the soil and at the same time, in the case of sandy soils which are liable to drifting, to act as a wind-break.

Those who use rye as a source of organic matter would be well advised to make an application of from 75 to 100 pounds of ammonium nitrate to the acre at the time of turning the crop under with the plough. The fertilizer serves to hasten the decomposition of the straw.

In closing, it should be emphasized that it is well to make sure when buying the seed, that it really is fall rye.

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SELL MORE MILK AS VEAL?

about surplus milk.

An increased production of veal would allow part of this surplus to be used profitably. Furthermore, writes Mr. Fernand Leonard of the Quebec Department of Agriculture, there is reason to hope for satisfactory prices. The production of veal in Canada, in the month of January 1962, amounted to only 2.9 million pounds, as compared with 4.3 million pounds for the same month last year — a decline of 32.6 per cent.

Poultry Parasites

Parasites are creatures which live at the expense of others. In the case of birds, the external parasites are represented by lice, mites and fleas, and internal parasites by intestinal worms, the tracheal worm (gapeworm) and the eye worm. Protozoan parasites of birds include the coccidia and another important group, the flagellates.

Generally speaking, broiler chickens are free from external parasites, thanks to the methods now used in rearing them and to disinfection and the provision of separate quarters for the young birds. Broilers are more likely to be affected by coccidiosis and enterohepatitis (blackhead) both of which are caused by protozoa. The administration of preventive medication incorporated in the birds' feed has proved effective for the control of coccidiosis, but blackhead must be prevented through the avoidance of damp litter and contamination from outside sources.

On ordinary, unspecialized farms, where less care is taken to segregate poultry and they are kept on pasture during their growing period, the birds are exposed to greater risks of contamination because of their contact with the soil, access to insect carriers of infection (intermediate hosts), and the dampness caused by changing weather conditions. Flocks raised under such outdoor circumstances are in greater danger of becoming infested by parasites than birds which are reared indoors.

Lice live on the birds continuously and can easily be seen. Mites, on the other hand, live in cracks in walls, in the nests and on the roosts and are very small and attack the birds at night. Some external parasites live on the blood of the birds and thus cause progressive emaciation, decreased egg production, and sometimes death. While clean living quarters must obviously be insisted on if the birds are to be kept free of either of the above-mentioned external parasites, successful control of mites necessarily involves killing them on the walls, roosts and nests: lice, however, are more easily destroyed on the birds where they live all the time.

Intestinal worms constitute another important group of poultry parasites. Poultrymen often ask whether worms are harmful to their flocks. Dr. Roland Filion of the Veterinarian Research Laboratory at Saint-Hyacinthe admits that the question is debatable but points

out that there are many examples to show that insects, worms and the eggs of worms act as reservoirs for certain diseases. This being the case, the point at issue is not merely one of infestation by worms but the possibility that diseases may be introduced by them into the flock, spread within it, or otherwise aggravate it. Some very good vermifuges are available for the control of these parasites and the careful poultryman can practice preventive hygiene so as to avoid such problems.

Lice can be effectively controlled by the application to the perches, about an hour before the birds go to roost for the night, of nicotine sulphate (Black Leaf 40%) or a 3% malathion solution or a 1% lindane solution. On the night of the application, the poultry house should be well ventilated so that the birds themselves will not be seriously affected by the fumes.

Mites can be controlled as follows. Prior to treatment, the poultry house must be thoroughly cleaned and disinfected. The fresh litter is then sprayed with a solution of 2.5% DDT or a 1% solution of malathion, or sprinkled with 4% malathion powder at the rate of one pound per 40 square feet of floor space. It is recommended that roosts be treated with 40% nicotine sulphate at the rate of 16 ounces per 200 running feet and then, a few days later, with used crank case-oil. In the case of laying birds, the nests should also be treated with malathion powder. Whatever pesticides are used, the manufacturer's directions should be followed to the letter and the treatment repeated at the prescribed intervals.

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MICROFLORA . . .

(Continued from page 151)

sense that canned products are, for they are not subjected to the same high temperature treatment. Moreover it should not be overlooked that all bacteria, yeasts and fungi even of the same species, will not behave alike at low temperatures. At freezing temperature many microorganisms are killed, but some surely survive. It has been reported that 99% of microbial content of fresh blueberries is eliminated by storing at freezing temperature for seven

months, but there are sufficient numbers of microorganisms viable in the frozen berries to cause spoilage in thawed berries in a short time at room temperature.

Microbiological analysis of the fresh and finished product is important also from the health point of view. Fruits grown, collected, shipped and processed for freezing and cold storage under unsanitary conditions can be a great health hazard, which demands a routine microbiological examination of fresh fruits and finished product, especially with reference to harmful microorganisms and other spoilage organisms. Needless to add that the spoilage organisms alter the texture, colour, flavour and taste of the fresh and frozen fruits. Fruit growers and processors should exercise great care in handling fruits as the microbiological content of their products is an index of quality.

THE CARE OF PULLETS ON RANGE

First of all, it should be remembered that pasture will not do the pullets much good unless there is plenty of grass on it and the range is well looked after. There should be at least an acre for every four or five hundred pullets. The movable range shelters now generally used should be shifted to a new location every two weeks, so that used ground will have a chance to recover. There should be shade, especially over the drinking fountains. The grass will be more appetizing to the birds if it is cut often enough to keep it about three inches high.

Rearing on range has several advantages, amongst others: regular growth resulting from exercise in the open air; a substantial saving of feed; a tendency to allow the birds to develop in such way that they do not begin to lay prematurely.

Feeding programmes (mash and scratch grain, or balanced rations) will produce good results if used according to the manufacturer's directions. If the range is liable to be raided by foxes, it would be well to protect the birds with an electric fence.

When pullets are out on range, the poultryman should keep an eye open for any needs or shortcomings which may affect their well-being. Since it is more natural and thrifty to raise pullets in freedom, rearing on range remains a popular practice for small and medium-sized flocks.

The Country Lane

PLEASURES IN NATURE

"The little cares that fretted me
I lost them yesterday
Among the fields above the sea,
Among the winds at play—
Among the lowing of the herds
The rustling of the trees
Among the singing of the birds
The humming of the bees".

— N. B. Home and Country.

IN A LIBRARY

I wandered into a library,
And the silence was like a tomb,
Then voices were all around me,
And they spoke right out of the gloom.

It was in the early evening,
And the embers were burning low;
I looked all around for the people,
But there were none that I would know.

But I seemed to hear their voices,
And they spoke of the strangest things.
Did I really hear these people,
Or had my thoughts just taken wings?

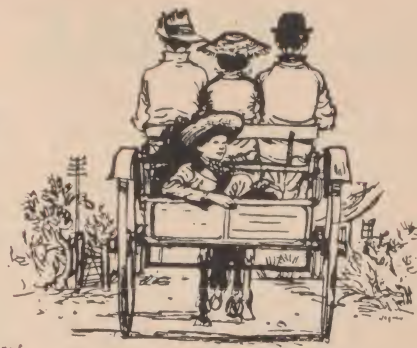
One spoke of lights of a city,
Of the hustle and rush and noise;
One told of her home and family,
And of all her sorrows and joys.

Then I heard all about nature,
The mountains and rivers and trees,
Flowers that bloomed in a garden,
And the lazy hum of the bees.

A voice that was sad and lonely,
With sobs, spoke of a wayward son;
Another told of toil and strife,
And of battles that he had won.
They talked of romance, sex and greed,
Of gaiety, fun and sorrow;
They prophesied to all mankind,
Of what might happen tomorrow.

Then, as I sat in that library,
And heard all the things they had said,
I pictured there a battlefield,
Where the blood all around flowed red.
As I slowly turned the pages,
I smiled, for I knew at last,
Where all the voices had come from —
From the writers out of the past.

— Ethel KETTYLE,
Brownsburg.



BROTHERS ALL

Stand off by yourself in your dreaming,
And all of your dreams are vain;
No grandeur of soul or spirit
Can man by himself attain.
It is willed we shall dwell as brothers;
As brothers then we must toil;
We must act with a common purpose
As we work in a common soil.
And each who would see accomplished
The dreams that he's proud to own,
Must strive for the goal with his fellows,
For no man can do it alone.

—Patchwork, Boston.

THE PLEASANT FIELDS

The pleasant fields — how friendly are their spaces,
Smiling at us through open pane and door,
Throwing their brightness into all our faces,
Tinted with colors from earth's flowering floor!
They never fade nor age. They know no graying.
They are the same as seasons go and come.
How good it is, when so much is decaying
To have them for the setting of our home!
The pleasant fields — how placid are their shadows!
How cooling are the winds that come and go
Across the orchards, woodlands, and the reaching
meadows!
How willingly their bounty they bestow!
They are like parents, when night overtakes us,
Holding us like tired children to their breast,
And seeing that no rude disturbance wakes us
While the calm stars shine down up our rest.

— Clarence Edwin FLYNN

"Have a real reserve with almost everybody and have a seeming reserve with almost nobody, for it is very disagreeable to seem reserved and very dangerous not to be so. Few people find the true medium; many are ridiculously mysterious and reserved upon trifles and many imprudently communicative of all they know."

— Chesterfield

The HOME GUARD of Dunham Township

When authorities of Lower Canada failed to see the seriousness of the Fenian threat of 1866-68, border residents acted on their own.

by Gerald P. HAWKE

from a paper presented to Missisquoi Community School

As a result of the failure of military authorities in Lower Canada to provide prompt and effective protection for the Missisquoi border, a small group of men in Dunham Township determined upon a plan of self-defence. Asa Westover and Andrew Ten Eyck were the leaders in this movement. They formed a company of sharp shooters which was called the Home Guard, each man furnishing his own rifle and ammunition. Asa Westover and James Pell visited manufacturers in the United States, finally selecting the Ballard Sporting Rifle with a heavy 30" barrel. Rifles and ammunition were purchased to equip the whole company.

Rumors of invasion were frequent during the next few years. In July 1868 the rumours were so persistent that Westover and Ten Eyck examined the border area and selected the best positions for defence. Eccles Hill was chosen as the best location if, as was expected, the Fenians should attempt a border crossing near that point. Another twenty-five men were also added to the roll of the Home Guard and equipped with the Ballard Rifles.

The rumours were not without foundation, for the Fenians were very quietly making preparations for another attempt on Canada. By the spring of 1870 they were ready. Arms and ammunition for 15,000 men had been shipped to the various border towns which had been marked as bases of operations, where trusted officers had received them without arousing the suspicions of the American authorities. Malone, N.Y., and St. Albans, Vt., were again to be the chief points of departure. During the first week of April, General O'Neil, now President of the Fenian Brotherhood, had visited St. Albans and found everything to his satisfaction.

However, the Canadians had secret service agents watching for indications of Fenian activity in the States. Early in April they

warned the Government to prepare for trouble. 5,000 troops were called up and remained on border duty most of the month of April, but were then withdrawn.

General O'Neil selected the 24th of May for the invasion, and established his headquarters at Franklin, Vt. He expected to have 2,000 to 3,000 men there at that date. Due to transportation delays only 800 had reported by that day. Moreover, U.S. authorities were now aware of the movement of Fenians to the border. On the 24th, President U.S. Grant issued a proclamation forbidding a breach of the Neutrality Act, and U.S. officials moved in to stop the attack. A United States Marshall, Gen. Geo. P. Foster, called upon Gen. O'Neil at Franklin and confronted him with the President's proclamation. O'Neil refused to comply with the President's orders, and as Foster had no troops to compel obedience, he continued across the Province line and warned Col. Chamberlain, the Canadian commander of O'Neil's attentions.

The Home Guard, however, were already in position at Eccles Hill, having established their own intelligence service, which warned them on the afternoon of the 23rd. Two of the Guard undertook to drive to Franklin that night to determine the actual state of affairs. They returned about 4:00 o'clock on the morning of the 24th with information that the Fenians planned to enter Canada that day by the Eccles Hill road. Mr. Westover proceeded to Frelighsburg and sent a telegram to the Government, giving the facts and inquiring what assistance they could depend upon. They received the reply that the Government did not believe their reports. Despite this disappointment, the Home Guards were determined to hold their position as long as possible. Twelve of them agreed to hold the fort until morning while the remainder returned home for food and rest. Those who took the night watch were — Asa Westover, Andrew Ten Eyck, R.L. Galer, James McRae, David Westover, Spencer Scott, John Pickering, Austin Hill, Lyman Call, James McElroy, George Longeway and Manville Rublee.

About 9 o'clock in the evening, Captain Westover received a message by telegraph from Lt. Col. B.

Chamberlain, asking him to hold Eccles Hill and informing him that the Colonel was coming by the next train to Stanbridge.

During the night two stray Fenians were halted at the border and taken into custody. They were turned over to the Volunteers who were beginning to arrive in small numbers at Cook's Corner. The 60th Missisquoi Battalion was also assembling at Stanbridge Village under Lt. Col. Chamberlain. At 4 o'clock in the morning Lieutenant Baker reached Eccles Hill with 21 men of Captain Robinson's Company of the Dunham Volunteers. Captain Bockus followed him with about the same number of men from Stanbridge. By ten o'clock Cols. Chamberlain and Osborne Smith, Adjutant Kemp, and Captain Gascoigne were also there.

General O'Neil, realizing that if he did not move quickly, U.S. troops could be expected to stop his expedition, was rushing his followers to the attack. They moved forward in three divisions, with skirmishers in the lead and a strong body of 200 men in support. The remainder of the force was kept in reserve. O'Neil led his men as far as the line, approximating the house of Alva Rykard, ten rods south of the border as his headquarters.

After crossing the boundary, the skirmishers, about 50 men of the Burlington Company of Fenians, dashed down the hill and across "Chickabiddy Creek" which lies between the border and Eccles Hill. As they crossed the bridge the Canadians opened fire, killing Private John Rowe and wounding Lieut. John Hallinan. The Fenians halted and retreated to the shelter of the Rykard buildings where they were joined by the next Company under Captain Carey, and commenced firing at the Canadians on Eccles Hill. A Fenian private, James Keenan, having exposed himself to the fire of the sharpshooters, was wounded. This caused a stampede which General O'Neil is reported to have tried to stop with the following words of encouragement, "Men of Ireland". I am ashamed of you. You have acted disgracefully, but you will have another chance of showing whether you are cravens or not. Comrades, we must not, we dare not, go back now with the stain of cowardice upon us. Comrades, I will lead you again, and if you will not

follow me, I will go with my officers and die in your front. I leave you now under the command of General Boyle O'Reilly."

Having thus proven his own courage, General O'Neil retired to an attic window in the house of Alva Rhicard, from which to watch the victorious charge of his compatriots, which would undoubtedly follow upon his inspiring words. The Canadians, however, discovered his position and directed such a hot fire in that direction that Mr. Rykard ordered the General to leave as his house was being seriously damaged by bullets. O'Neil left the house and was immediately arrested by the United States Marshall, General Foster, who had arrived with reinforcements. The Fenian General was very angry and threatened the Marshall, who placed a revolver at his head and promised to shoot if he did not submit quietly. O'Neil's courage quickly evaporated and he was placed in a covered carriage and removed to St. Albans under guard.

Though another 500 Fenians had arrived from St. Albans and armed themselves, the Irishmen were now without a leader. The officers held a Council of War where General John Boyle O'Reilly was asked to assume command. When he refused the hopelessness of their cause became apparent to all. General Spier, leader of the 1866 attack, arrived in St. Albans the next morning and attempted to rally the Irish forces, but by this time a strong defence had been established by the Canadians, and a body of United States troops had arrived in their rear. The "Army of the Irish Republic", as old soldiers are supposed to do, just faded away.

Late in the afternoon of the day of the battle the Fenians from St. Albans had brought up a field gun to a point about 1200 yards in front of Eccles Hill. Before it could be fired, Colonel Smith, then in charge of the whole force, ordered an advance of the 60th Battalion and the Home Guards in shirmishing order, with the Victoria Rifles covering their advance from the Hill. The Fenians broke for cover in full flight, throwing away their arms and other impedimenta as they ran, not stopping until they were far over the border. At nightfall several of the Fenians ventured back and fired three shots from their field gun, doing no damage. There were no Canadian casualties during the whole engagement. The Fenians lost 4 to 5 killed and about

18 wounded. General Donnely, O'Neil's Chief of Staff, was among the wounded.

After the three shots from their field piece, the Fenians took it back nearly to their camp. That same evening a party of young Canadians (the record does not give their names or military connections, if any) crossed the border and succeeded in bringing the cannon back to Canada. Hannibal Yates is said to have furnished the team which drew it to his father's farm on Lot 78 near Pigeon Hill, where it was hidden in the barn.

In the morning Lieut. Galer, C. S. Galer and others of the Home Guard removed it to Pigeon Hill, or so said the Home Guards. Lieut. Col. James Bulman, Commander of the 79th Regiment, tells a different story. I quote, "Lt. Col. Miller paid Yates \$8.00 to draw the gun to Freligsburg. I was present when the gun came in, and saw Miller, who had told me what he had done, pay the money. The gun was surreptitiously removed during the night by the Home Guard who kept it hid for several years and finally loaned it to dentist. C. H. Wells of Cowansville when the gun was in a very delapidated condition."

For a time it stood on the lawn of Nesbitt home in Cowansville. Anyone wishing to see it today will find it where it properly belongs, on the crest of Eccles Hill, firmly anchored in a massive block of concrete, the carriage having rotted beyond repair.

THE JUNE BUG . . .

(Continued from page 153)

gions. Unfortunately, the peak population in southwestern Quebec does not coincide with the peak in eastern Quebec. Ontario shows three main areas with peak broods occurring in different years. In this area, southwestern Quebec, the peak adult population of May Beetles during the past few years have occurred in 1950, 1953, 1956, 1959 and 1962. Moderate to severe damage from White Grubs has followed each year of high adult population in 1951, 1954, 1957 and 1960, and, consequently, damage from grubs probably will occur in 1963.

Grain, grass crops and pastures, potatoes, root crops such as turnips, strawberries, and flowering plants all provide food for White Grubs. Old lawns too may suffer

so severely that the turf can be rolled completely off large patches, the roots having been eaten away by the grubs.

Protective and Control Measures

Crop damage due to white Grubs almost always takes place in old sod land, such as lawns, golf courses, permanent or semi-permanent pastures, or in crops planted in land broken out of old sod the previous year. Remembering that the grubs remain three years in the soil provides a clue toward the easiest methods of control — short rotation and cultivation. Tilling the soil kills many of the grubs, and turns others up to the surface where they are easily picked up and eaten by birds. White Grubs do not feed upon roots of legumes, so the use of clovers or alfalfa in the rotation helps to keep infestation at a low level. It is not advisable to plant potatoes or to set strawberries in land which is newly plowed sod. Plant a crop of buckwheat, or grain with alsike or red clover. Following these crops, any crop should be safe from damage.

Chemical control of White Grubs is quite feasible, although the soil insecticides now in use act rather slowly against them. The insecticides generally used are aldrin and dieldrin. These should be applied previous to planting, broadcast and worked into the soil by harrowing, or drilled into the soil. The normal rate of application is 3 to 5 lbs. of actual chemical (based on 100%) per acre. Since all commercial formulations of these insecticides contain less than 100% of the active chemical (ranging from 2½% to 50%), the actual amount per acre to be applied depends upon the formulation used and must be calculated to ensure that the correct amount is used. This treatment also controls Wireworms, and helps control such other pests as Cutworms, Potato Flea Beetle, and to some extent Root Maggots affecting Cabbage and related crops.

Strong, thrifty sod is usually not damaged severely by grubs. If grubs are a problem, water lawns in dry spells and mow the lawn only occasionally. The lawn may also be treated with chemicals of which a number are available. Directions should be followed carefully and it usually necessary to treat only every third year in the early May to early June period or in August or September.

Feeding People by the Hundreds

by Prof. D. RAYMOND,
School of Household Science

People by the hundreds! Whether it is an outing such as Better Farming Day at Macdonald College or a church supper, cooking food in quantity can be a problem. Picture is of back of food tent, Better Farming Day, 1962.



What should we serve? How much do we need to feed one, two, or three hundred hungry individuals? How much has to be prepared from the raw state to give the required finished amounts? What about recipes? What about the equipment with which to prepare these large quantities? Sooner or later nearly every woman in a rural community finds herself involved to some degree in the organization of a group meal. Above are some of the questions she must answer if she wishes to meet this challenge.

To help answer these questions a quantity yield guide has been prepared for some of the more common foods, as well as ideas on how to solve the equipment problems and a few quantity recipes.

Home size equipment is all that is available in most instances and it should generally prove quite adequate food for a large group, providing neighbours will be generous with theirs should you need to augment your own.

If large group meals are a frequent occurrence, then it might be wise to purchase a few pieces of scale equipment. This, of course, assumes that you have the facilities for using the larger pieces of equipment. For example, a baking pan 12" x 20" x 2" is a standard size and will hold fifty servings of many items, but is would be of little value as a baking pan if the largest oven available is only 18" x 18".

Investment in some two or two and a half gallon pots would make soup and vegetable cooking less time consuming and laborious. These pots can sit on top of the stove and will use less space than many little saucepans. Larger pots are available but they are not as satisfactory for your purpose as

Guide to Quantities Required to Serve One Hundred

Item	Size of Serving	Amount Required
Fruit or Tomato Juice	1/2 cup or 4 oz.	2 1/2 gals. (20-No. 2 cans or 10-No. 5 cans)
Bread	2 slices	10-24 oz. loaves
Rolls	1 1/2 to 2 per person	13 to 15 doz.
Butter	1 to 1 1/2 pats per person	3 lbs.
Cream 15%	1 oz. per serving	2 1/2 qts.
Sugar	1/2 tbsp.	1 1/2 lbs.
Tea	1 cup	1/2 lb. per 100 cups.
Coffee	1 cup	2 1/2 lbs OR Instant 2-6 oz. jars.
Milk	1-6-oz. glass	5 gals.
Ice Cream (bulk)	1-No. 12 scoop	4 gals.
(brick)	6 to 7 slices per brick	15 to 16 bricks
Chicken (roast)	3 1/2 oz. sliced	30 to 34 lbs. ready to cook (8-5 to 6 lbs. birds)
Chicken (fryers)	1/4's	25-2 1/2 to 3 lbs. birds
Chicken	1/2's	50-2 to 2 1/2 lbs. birds
Turkey (Roast)	3 1/2 oz. sliced	35 to 40 lbs. ready to cook (3-18 to 20 lb. birds)
Potatoes (mashed)	4 oz.	25 lbs.
Potatoes (browned)	4 oz.	25 lbs.
Fresh Vegetables (cooked)	3 oz.	25 to 28 lbs.
Raw Vegetables - Lettuce	1 to 1 1/2 oz.	16 to 20 heads
Raw Vegetables Tomatoes	3 to 4 slices	25 lbs.
Raw Vegetables Greens	1 oz	9 to 10 lbs.
Raw Vegetables Cucumber	3 to 4 slices	12 to 16 cucumbers (approx 8")
Sandwiches (Sliced Cheese)	1 to 1 1/2 oz.	6 to 8 lbs.
Sandwiches Sliced Meat	1 1/2 oz.	10 lbs.
Sandwiches Mixtures	3 tbsp.	4 qts.

Quantity Recipes

Brown Fricasse of Chicken

Yield: 50 servings

Amount	Ingredient	Method.
35 lbs.	Chicken	1. Cut chicken in pieces, season with salt and pepper.
2 Tbsp.	Salt	2. Dip in flour.
1 tsp	Pepper	3. Brown in hot fat.
12 oz.	Flour	4. Place in roasting pan cover with boiling water, cook in oven or on top of stove, slowly. When tender remove from stock.
1 lb.	Fat	5. Make gravy in pan in which chicken was browned using gravy recipe.
1 gallon	water	

they will be heavy to handle when full and can be the cause of accidents.

Where oven or refrigerator space limits the size of pan or tray, you might consider the use of individual containers. These are available in china, metal, aluminum foil, and in paper. They come in a variety of shapes from deep custard cup to shallow pie dish, and in a range of capacities from 4 oz. to 8 oz. which will aid you in controlling the size of your serving along with increasing the ease of handling. These individual containers can be used equally satisfactorily for hot or cold items but their biggest advantage is that they can be handled in any multiple grouping that fits the available space.

When you have large quantities of ingredients to mix a plastic or metal dishpan makes an excellent mixing bowl. Of course this bowl should be kept for food preparation purposes only.

Your meat and poultry can be cooked in the same way you cook it for your family. If you have tried the method of greasing the poultry first then wrapping it in heavy kraft paper or aluminum foil, then placing in oven at a temperature not over 300° for a long slow cooking, this is the time to try it. With this method the tedious job of turning and basting is avoided and the final results are as good tasting as they are good looking.

If a deep freezer is available then quantity production can be greatly simplified. Single recipes of items can be prepared at convenient times and stored in the freezer until sufficient quantities have been accumulated. On the day of use the items can be removed from the freezer, given any further preparation and are then ready to serve.

If you wish to use your favorite recipes by all means do so. However, to avoid disappointment in the results do not increase the quantity indiscriminately. Doubling a recipe or even tripling it may still produce the original "goodness", but the success of a recipe depends on the relationship between all the ingredients and multiplying them beyond a certain point without making other adjustments may produce a very unsatisfactory result. If the facilities are available to produce the item in quantity use a tried and proven quantity recipe. You will be much happier with the final results.

Quantity Recipes

Hot Potato Salad

Yield: 50 servings

Amount	Ingredients	Method
1 ½ quarts 15 lbs.	hot vegetable sauce potatoes, dice raw	1. cook potatoes 2. fold all ingredients into hot vegetable sauce.
3 oz. 6 oz. 16	onion green pepper eggs hard cooked	

Individual Chicken or Turkey Pie

Yield: 50 ind. pies

Amount	Ingredient	Method
5 lbs. 3 lbs. 8 oz.	Cooked diced chicken or turkey Potatoes, diced partially cooked.	1. Cook fowl in boiling salted water (1 tsp. salt per fowl). Simmer until tender approx 2½ hours.
2 lbs. 1 gallon	Peas fresh or frozen Chicken gravy	2. Remove fowl from stock 3. Strip meat from carcass hold refrigerated until needed.
Gravy 10 oz. 5 oz. 3 quarts	fat flour stock	4. Use stock to make gravy 5. Use 8 oz. casserole or foil pie tin, in each place 1 oz. fowl, 5 cubes of potato, 1 Tbsp. peas. ¼ cup gravy.
		6. Cover each pie with Biscuit dough crust. Bake 12-15 minutes at 450°.

Mix fat and flour, stir in hot stock, cook 15 min.

Barbecue Chicken

Yield: 50 servings

Amount	Ingredient	Method.
35 lbs.	Chicken fryers	1. Cut chicken into ½'s or ¼'s as desired, season with salt.
2 Tbsp	Salt	2. Melt fat in baking pan. brown chicken in pan.
1 lb.	Fat	3. Pour barbecue sauce over browned chicken.
1 ½ gallon	Barbecue sauce	4. Bake 1 ½ to 2 hours, at 325° Baste frequently during baking

Hot Vegetable Sauce

Yield: 1½ quarts

Amount	Ingredient	Method.
½ lb. 3 oz.	bacon (cubed before frying) flour	1. Fry bacon crisp 2. Add flour to bacon fat stir until smooth
10 oz.	sugar	3. Mix sugar, salt, vinegar. and water, cook one minute.
2 Tbsp.	salt	4. Add to flour fat mixture
		5. Cook over water for 15 minutes.

Barbecue Sauce

Yield: 1½ gallons

Amount	Ingredients	Method
1 gallon 3 quarts 2 cups 2 Tbsp. 1 tsp. ½ cup. 1 tsp. ¼ cup 1 Tbs. ½ cup 2	catsup water vinegar salt pepper sugar chili powder Worcestershire sauce tobasco sauce grated onion lemons sliced	1. combine all ingredients 2. simmer on top of stove for 10 minutes.



The Better Impulse

NEWS AND VIEWS OF THE
WOMEN'S INSTITUTES OF QUEBEC

The 48th Convention



Mrs. Ellard presenting Mrs. James Haggerty, president of Federated Women's Institutes of Canada with a corsage. Mrs. Haggerty addressed the delegates.

Perfect weather accompanied the delegates to Macdonald College for the 48th annual Convention of the Quebec Women's Institutes. The College Farm Day this year coincided with the second day of our convention and many branch delegates arranged to come Tuesday instead of Wednesday and helped to swell the near 3000 attendance.

Executive meetings and Board meetings followed the usual pattern. The reports of convenors showed the year's astonishing



At work on the resolutions! Left to right: Mrs. G. McGibbon, 2nd vice-president; Mrs. V. R. Beattie, treasurer; Mrs. Griffith, Eastern Ont. W. I., Mrs. J. Ossington, 1st. vice-president; Mrs. G. D. Harvey, past-president; Miss Holmes, secretary; Mrs. H. M. Ellard, president; Miss Edna Smith, recording secretary.

scope of activities.

Mrs. Dion entertained the Board at tea Tuesday afternoon at Glenaladale, always a pleasant interlude and we were especially pleased that our convention this year was held at a date when Dr. Dion could be here to welcome the delegates to Macdonald College.

Mrs. Jas. Haggerty, our national president of FWIC, arrived Tuesday evening on her way home from a convention in Newfoundland and so was able to spend an extra day with us.

Wednesday evening guests were present from organizations with which we are associated and a delightful innovation was the choral group of 26 young voices and a very young (9 yrs.) violinist, both under the direction of Mrs. S. Persson.

Mrs. Haggerty was the speaker Thursday forenoon. Mrs. Haggerty, a charming lady, a fine address on FWIC and the aims and work still waiting for WI's members all over the world, in our own northern regions and in the underdeveloped countries.

In the afternoon a panel discussion on ARDA (Rural Rehabilitation and Development Act), with panellists Dr. Helen C. Abell and R. A. Stutt of the Canada Department of Agriculture and Dr. H. G. Dion, elicited so much interest and so many questions that 'suppertime' was the only way of bringing it to a close.

ARDA is a new project initiated by the Federal Government. Its purpose is the use, development and conservation of rural resources in Canada, both physical resources of land and water and human resources.

The Handicrafts consisted mainly this year of articles made for the Salada Foods contest. There were fine examples of bedspreads, rugs and handmade dresses.

Several resolutions were passed and will be forwarded to the proper authorities. They included the Compulsory Pasteurization of Milk which after years of effort, is still being forwarded to the government. The same is true of the resolutions will be listed in the next issue of the Journal.

The Month With The W.I.

County Meetings have been well reported to all branches this month. The same can be said for the Leadership Course as those privileged to attend have done a good job in passing on information gained to other branches and members. I would like to correct a misunderstanding in the May Journal, in the Stanbridge East report. The wheel chair was loaned to Mr. Thomas McElroy of Stanbridge Station, not to Mrs. W. McElroy of Dunham as reported.

ARGENTEUIL:

ARUNDEL are to study the book "Your family under Quebec Law" and are making two quilts. BROWNSBURG organized a bus trip to the Canadian Celanese Carpet Co. plant, and were accompanied by members of 5 other branches in the county. They catered to the High School Graduation banquet and looked after the kitchen for the blood donor clinic. This branch also enjoyed a conducted tour of the C.I.L.

CONVENTION DELEGATES



plant. Mrs. L. Mason, Citizenship convener, had as her guest, Mrs. W. Freeland, who conducted an informative discussion on what makes a citizen. DALESVILLE-LOUISA donated books to the school library. JERUSALEM-BETHANY gave hints for First Aid, and had a talk and discussion on Cancer. LAKEFIELD have made a quilt to help raise funds and MORIN HEIGHTS had Mrs. L. Mesnard, Red Cross representative, to speak on work done by the Red Cross. PIONEER had Miss Grace Gardner, former Principal of the Montreal High School for Girls, as guest speaker. Miss Gardner had just returned from a trip abroad, and through her vivid descriptions members visited Spain, Portugal, Gibraltar, Italy, Vienna and Copenhagen. UPPER LACHUTE-EAST END held two publicity contests and presented a gift to a member whose home was destroyed by fire. Frontier also reported.

BONAYENTURE:

BLACK CAPE received a letter from their foster-child. Information on transplanting was given, and the Education convener read an article "Good Example in the Home". GRAND CASPEDIA members have a teaspoon each for roll call and have completed some Red Cross sewing. MARCIL observed Health Week and a paper was read on "Care of the Eyes". MATAPEDIA presented a Bowling Trophy, and silver cups to members' babies. PORT DANIEL's roll call was "Invite a Guest to the Meeting". They hoped to attract new members.

BROME:

AUSTIN brought in Cotton for Cancer, and sent a donation to Miss Isobel Miller to be used in her missionary work in Hong Kong. SOUTH BOLTON enjoyed a talk given by Mrs. McClond of the C.A.C.

CHATEAUGUAY-HUNTINGDON:

AUBREY-RIVERFIELD put their grandmothers to

work, by putting them in charge of the program. Mrs. Janet Reddick gave a humorous reading, and Mrs. Hamilton told of a recent visit to Scotland. Mrs. Carmichael showed slides of a trip to the U.S.A. HEMMINGFORD had a visit from the County President, Mrs. Middlemiss. Items discussed were Life memberships, a code of safety for farmers, the Federated News, and the importance of women in the world today. HOWICK saw slides, and had a talk on a Florida trip given by Mrs. C. Kerr, and other members. A bicycle Safety Test was held. ORMSTOWN discussed the benefits of a Home and School Association. Embroidery and Needlepoint were demonstrated by Mrs. W. Younie who had attended the Leadership course.

GASPE:

GASPE heard an article taken from an Australian paper, entitled "The Story of our Collect" A travelling apron brought in a nice sum, and 12 sewing kits have been sent to the U.S.C. WAKEHAM'S roll call was "Ways to Improve our Meetings". Used clothing was sent to the U.S.C. and used Christmas cards to a war veteran in England.

GATINEAU:

AYLMER EAST heard an informative talk, given by Mrs. W. J. Fuller, on procedure at W. I. Meetings and the duties of office holders. A donation was made towards prizes for a Public Speaking competition at the High School. A paper was also read on W.I. work in the Caribbean. BRECKENRIDGE Mrs. P. McMillan, convener of Education gave an account of the work being done by the Dept. of Indian Affairs among the 180,00 Indians in Canada, 20,000 of whom live in Quebec. EARDLEY heard papers on "Meal-time Manners" and on Cake Mixes containing dried eggs. KAZABAZUA gave money for a school prize to the Queen Elizabeth School. LOWER-EARDLEY held a Bake Sale in aid of branch funds, and RUPERT have purchased new curtains for their hall. Improve-

ments have been made in the flower border at the Union Cemetery. Wright enjoyed readings by their Agriculture convener, Mrs. J. McConnery.

JACQUES CARTIER:

Ste. ANNE de BELLEVUE welcomed a new member. Mrs. A. Roloff gave a talk and demonstration on "Physical Fitness", and the roll call was answered with cotton for the Cancer Society. An interesting note: — Mrs. Tierney, a member of this branch will meet a pen pal of 42 years, Mrs. Legg of Mitcham, England, when she arrives from England, for a visit.

MEGANTIC:

KINNEAR'S MILLS answered the roll call with wild flowers. Each member received a Federated pin.

MISSISQUOI:

COWANSVILLE — Hints on the care and pruning of roses and hedges were passed on by Mrs. Lewis who had attended the Leadership Course. Needlepoint was also demonstrated. DUNHAM have a new member, and they are going to send their 50th Anniversary quilt in for the Convention. Blueprints of the cairn to be erected were examined. STANBRIDGE EAST heard a report of a C.A.C. meeting held in Montreal. Members of Cowansville W.I. were entertained.

PAPINEAU:

LOCHABER report 10 subscriptions to the Federated News, and C.A.C. Bulletins were given out. Here's a good idea — A Suggestion Box — 10 minutes is to be allowed at each meeting for the suggestion to be discussed. A gift is to be presented to a Charter Member celebrating her 50th Wedding Anniversary.

PONTIAC:

BRISTOL held a social evening, and brought in donations for their hall. CLARENDON had a talk by Mrs. Neil Drummond on preparing flowers for showing. ELMSIDE had Mr. Neil Drummond as guest speaker, his subject being "Changing Times". FORT COULONGE named garden pests and how to destroy them for roll call. Did you know that you can put pepper on small cabbage plants, and that there is a special paper to use to wrap the roots of these plants to prevent cut-worm? Mrs. H. R. Rabb, Agriculture convener gave readings on gardening. QUYON greatly enjoyed a talk by Miss McIlraith, Supt. of the Ottawa branch of the Victorian Order of Nurses. Her subject was "The Care of Old People in the Home." SHAWVILLE had Mr. Frank Andai, History teacher at the High School as speaker. He spoke on Pre and Post War Living in Hungary. Mr. Andai recently gained his Canadian Citizenship papers. STARK'S CORNERS had a plant sale. WYMAN have helped two families who lost their homes by fire. Pennies for Friendship are collected at each meeting. A group of members and friends visited T.V. Station CJOH and were interviewed on Plaza 13. Several readings were given by conveners.

QUEBEC:

VALCARTIER donated money to Roman Catholic and Protestant Schools for prizes.

RAWDON played "Twenty Questions" and are to have a drawing on a rug, with proceeds going to the Dental Clinic.

(Remainder of News next month)

NEWS HELD OVER FROM JUNE

RICHMOND:

Cleveland donated groceries to a needy family. Denison Mills give out house plant seeds for a contest in the fall. A window box contest will also be held. Gore had a jumbled vegetable contest. Melbourne Ridge held a dance and set up the picnic table. Richmond Hill held a dance and a shower for a bride-to-be. Repairs are to be made to their hall. Richmond Young Women had an interesting speaker, Mrs. Noel Lapi-erre, the wife of a Veterinary, who told of the duties of a veterinary's wife and how she assists her husband. Spooner Pond held a contest on a Flower Wedding. Empty spools were collected and sent to Marcil. Shipton report that Mrs. A. Paige was the winner of a corsage contest.

ROUVILLE:

Abbotsford remembered shut-ins and sick members. A group subscription was taken to the Federated News.

SHEFFORD:

Granby Hill are to give "Improvement" prizes at Granby High School for all classes from Grades III to XI inclusive. Granby West had Mrs. Ossington as guest speaker, her subject being W.I. work. Waterloo-Warden decided to hold a School Fair.

SHERBROOKE:

Belvidere saw slides and heard a talk by a member who has been to Florida. A paper drive was held, with proceeds going for School Fair work. Lennoxville took out subscriptions to the C.A.C. Milby also had a paper drive and catered to a Milk Producer's Meeting. A gift was presented to Mrs. Spaulding, a member who is moving to Ontario.

STANSTEAD:

Hatley enjoyed a "trip" to New Zealand through the medium of slides and a talk given by Mr. H. Doherty. Minton peeled potatoes blindfold. A skit, presented by two little girls, entitled "Two Black Crows" was greatly enjoyed, and a potted plant and a card show-er was sent to a member on her 80th birthday. Way's Mills received replies from the Provincial Premier and the Minister of Health in response to a request for action on the sale of tainted meat.

VAUDREUIL:

Cavagnal enjoyed a talk by Mr. Roht of Macdonald College on "Gardening". A film on Spring Fashions was shown, and a donation given towards prizes for the Hobby Show. Harwood visited the old church in Vaudreuil and were welcomed by the Curé. This church was built in 1773, and the first bell was blessed in 1775. The small white marble statues in the Church, of St. John and St. Mark, have been loaned to art exhibitions in Paris, Winnipeg and Vancouver. The objective of a gift to the new Lakeshore Hospital was more than achieved, and a subscription taken to the Countrywoman.

GOLDEN ANNIVERSARY REUNION — CLASS OF 1912



Men, standing, left to right: A. R. Ness, M. B. Davis, H. B. Durost, J. G. Robertson, J. M. Robinson, L. C. Raymond, E. A. Lods, L. V. Parent, D. B. Flewelling. Ladies, seated: Mrs. Parent, Mrs. Durost, Mrs. Flewelling, Mrs. Ness, Mrs. Robertson, Mrs. S. M. Fiske, Mrs. Robinson, Mrs. Davis.

The Class of 1912, the second class to graduate in Agriculture from Macdonald College, held its Golden Anniversary reunion at Macdonald College during June. Nine graduates, pictured above, were present out of an original class of nineteen. Five are deceased and five others were unable to attend.

All members of the class devoted their lives to agriculture. Of these three held positions as staff members at Macdonald College — E. A. Lods, A. R. Ness and L. C. Raymond. Five class members were pioneers in serving farmers as agricultural representatives in this Province — A. A. Campbell, E. A. Lods, R. Newton, L. V. Parent, and L. C. Raymond. One grad spent his life on his own farm while another became president of a university, illustrating the wide choice of opportunity open to graduates in agriculture. Nine members joined the forces in World War I. Members of the class are to be found in seven of the ten provinces.

The Class presented Macdonald College with a sundial as a token of esteem and appreciation. They also gathered, and displayed 127 pictures of class activities and members, most of the pictures dealing with graduation and college life.

PROF. W. A. DeLONG RETIRES

Dr. W. A. DeLong, Professor of Agricultural Chemistry at Macdonald College since 1936, retires this month, and will return to his home Province of Nova Scotia. During his teaching career at Macdonald College, Dr. DeLong has taught Soil Science, Analytical Chemistry and Plant Biochemistry. He will also be remembered by more than forty graduate students in Agricultural Chemistry for whom he served as advisor and director of research.

Dr. DeLong is well known for his contributions to research. He has many publications to his credit, and his studies on the relation between soil potash and phosphorus status and fertility and the incorporation of plant residues in the soil and organic matter, as well as his research concerning the quality and winter hardiness in apples have contributed to the advancement of Agricultural Science. In recognition of his services to Agricultural Science, Dr. DeLong was elected a fellow of the Agricultural Institute of Canada in 1949.

Dr. DeLong also served for many years as chairman of the Macdonald College Soil Fertility Committee and as a member of the Quebec Plant Nutrition Board and the Na-

tional Soil Survey Committee.

Dr. DeLong was born in Digby, Nova Scotia in 1894. He obtained his B.S.A. from the University of Toronto, in 1920; his M.Sc from Macdonald College, McGill University and his Ph.D from the University of Minnesota in 1928. From 1928 to 1936 he was Professor of Chemistry at Acadia University, Wolfville, N.S.

R. L. RUXLEY RETIRES

Mr. R. L. Puxley, secretary of Macdonald College since 1957, retired June 30, 1962. Mr. Puxley, who joined McGill as assistant comptroller following World War II, is well known to staff and students of Macdonald.

Mr. Puxley served in both World Wars. During World War I he served in the Royal Field Artillery and became commander of his Battery. During the second World War he served six years with the Royal Canadian Air Force.

Mr. and Mrs. Puxley live at Hudson Heights. Mr. Puxley plans a short holiday in England this summer. On his return he will pursue his hobby of gardening. The Puxley's have a son and twin daughters, all married.



THE MACDONALD LASSIE